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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/764,810	01/16/2001	Abraham Mendelson	42390P10140	7766

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EXAMINER

KIM, HONG CHONG

ART UNIT	PAPER NUMBER
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2186

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DATE MAILED: 10/02/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/764,810

Applicant(s)

MENDELSON ET AL.

Examiner

Hong C Kim

Art Unit

2186

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Detailed Action

1. Claims 1-30 are presented for examination. This office action is in response to the amendment filed on 7/7/03.

2. Applicants are reminded of the duty to disclose information under 37 CFR 1.56.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-5, 10, 11-15, 20, 21-25 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rakvic et al. (Rakvic) Completion time multiple branch prediction for enhancing trace cache performance, Computer Architecture, 2000. Proceedings of the 27th International Symposium on , 2000, Page(s): 47 -58 in view of Arlitt et al. (Arlitt) U.S. Patent No. 6,272,598.

As to claims 1, 11, and 21, Rakvic, discloses an apparatus comprising: a cache management logistics to control a transfer of a trace (Fig. 1); an execution unit (Fig. 1) ; a first cache (Fig. 1, fill unit) to evict the trace based on a replacement mechanism (page 48 right column); and a second cache (Fig. 1 block trace cache), however, Rakvic does not specifically

disclose the second cache to receive the evicted trace based on a first number of access to the trace.

Arlitt discloses the second cache to receive the evicted trace based on a first number of access to the trace (col. 6 lines 43-55) for the purpose of increasing the hit rate thereby increasing the system speed.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the second cache to receive the evicted trace based on a first number of access to the trace as taught by Arlitt into the Rakvic for the advantages stated above.

As to claims 2, 12, and 22, Arlitt, further discloses a usage counter (col. 6 lines 43-55).

As to claims 3, 13, and 23, Arlitt, further discloses a comparator (col. 6 lines 43-55).

As to claims 4, 14, and 24, Rakvic, further discloses the trace is transferred from the first cache to the second cache (Fig. 1).

As to claims 5, 15, and 25, Arlitt, further discloses the trace is discarded (col. 6 lines 43-55).

As to claims 10, 20, and 30, Arlitt, further discloses a LRU mechanism (col. 6 lines 4-13).

5. Claims 6-9, 16-19, and 26-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rakvic et al. (Rakvic) Completion time multiple branch prediction for enhancing trace cache performance, Computer Architecture, 2000. Proceedings of the 27th International Symposium on , 2000, Page(s): 47 -58 in view of Arlitt et al. (Arlitt) U.S. Patent No. 6,272,598 further in view of Patel et al. (Patel), Evaluation of design options for the trace cache fetch mechanism, Computers, IEEE Transactions on , Volume: 48 Issue: 2 , Feb. 1999, Page(s): 193 -204.

As to claims 6, 16, and 26, Rakvic and Arlitt disclose the invention as claimed, however, neither Rakvic nor Arlitt disclose a L2 cache.

Patel discloses a L2 cache for the purpose of increasing the hit rate thereby increasing the system speed.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate a L2 cache as taught by Patel into the combined invention of Rakvic and Arlitt for the advantages stated above.

As to claims 7-9, 17-19, and 27-19, Arlitt, further discloses a threshold value for a replacement policy (col. 6 lines 43-55).

Response to Amendment

6. Applicant's arguments filed on 7/7/03 have been fully considered but they are not persuasive.

Applicant's argument that the reference does not disclose a cache management logistics to control a transfer of a trace; a first cache to evict the trace based on a replacement mechanism (page 48 right column); and a second cache to receive the evicted trace based on a first number of access to the trace.

Rakvic, discloses a cache management logistics to control a transfer of a trace (Fig. 1); an execution unit (Fig. 1) ; a first cache (Fig. 1, fill unit) to evict the trace based on a replacement mechanism (page 48 right column); and a second cache (Fig. 1 block trace cache).

Arlitt discloses the second cache to receive the evicted trace based on a first number of access to the trace (col. 6 lines 43-55) for the purpose of increasing the hit rate thereby increasing the system speed. Therefore broadly written claims are disclosed by the references cited.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See attached PTO-892.

8. a shortened statutory period for response to this action is set to expire 3 (three) months and 0 (zero) days from the mail date of this letter. Failure to respond within the period for response will result in **ABANDONMENT** of the application (see 35 USC 133, MPEP 710.02,

710.02(b)).

9. Applicants are requested to number each line of each claim starting with line number one to provide easier communication in the future.

10. When responding to the office action, Applicant is advised to clearly point out the patentable novelty which he or she thinks the claims present in view of the state of the art disclosed by the references cited or the objections made. He or she must also show how the amendments avoid such references or objections. See 37 C.F.R. § 1.111(c).

11. When responding to the office action, Applicants are advised to provide the examiner with the line numbers and page numbers in the application and/or references cited to assist examiner to locate the appropriate paragraphs.

12. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Hong Kim whose telephone number is (703) 305-3835. The Examiner can normally be reached on the weekdays from 8:30 AM to 5:00 PM.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Matt Kim, can be reached on (703) 305-3821.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-3900.

13. **Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to TC-2100:

After-final (703) 746-7238

Official (703) 746-7239 (for formal communications intended for

entry)

Non-Official/Draft (703) 746-7240 (for informal or draft communications, please label "PROPOSED" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist).



HK
Primary Patent Examiner
September 18, 2003